

in this report, but for reasons of accuracy and confidentiality, we present them at the county level in certain situations.<sup>17</sup>

We present several maps and charts that are entirely or substantially new. For example, previous reports contained a single map, which counted (at the holding company level) each provider with any fixed-location connections reported for the ZIP Code and also any mobile wireless service provider who listed the ZIP Code as part of its high-speed service area. By contrast, in this report we provide a map for providers (counted at the holding company level) of any fixed-location connections reported for the census tract and a separate map for providers making mobile wireless high-speed service available. Also, we present an entirely new map showing the number of providers that reported any *residential* fixed-location connections, thereby excluding any providers of exclusively business fixed-location connections in the census tract.

We also present entirely new maps that are based on our estimates of the share of households with fixed-location high-speed connections in individual census tracts (that is, census tract-specific estimates of household subscribership, or *adoption*, rates).

In several new charts, we begin to explore relationships between our estimated household adoption rates and demographic factors, for example, median household income, households per square mile, and educational attainment.<sup>18</sup> We primarily illustrate county-level data at this time because there are unresolved anomalies in some census tract data.<sup>19</sup>

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<sup>17</sup> For example, we have used the newly available data to estimate, for individual census tracts, the share of households with high-speed connections over fixed-location technologies, and have found that 10% of census tracts have estimates at or above 100%. The number of such “outliers” is substantially reduced, to 1%, when estimates are made for individual counties. (Census tracts can easily be aggregated into counties because tracts do not cross county boundaries.) Some misinterpretation of reporting instructions can be expected whenever a substantially modified data collection is implemented for the first time. We are investigating the reasons for these anomalous census tract results and are working with the Form 477 filers to improve the accuracy of the data currently collected and for future collections. Our preliminary assessment is that reasons may include (1) geocoding misallocations in this first collection of data for census tracts (an unfamiliar geography for many filers), with unresolved service locations attributed to a single census tract; (2) proper allocation of connections to the county level by some filers, but improper allocation of all connections to a single tract in the county; (3) possible overestimation of residential connections in service plans for which the customer base is primarily residential that is not counterbalanced by underestimation of residential connections in service plans purchased primarily by businesses; and (4) connections at seasonally or occasionally occupied housing units, such as vacation homes, while the household is counted elsewhere. We also note that the numbers of households in census tracts, which we use to generate the residential share estimates, are themselves estimates, for 2009. (We have used GeoLytics, Inc. census block-level estimates of households in 2009, which can be aggregated into estimates for individual census tracts. Other estimates of households by census block or census tract may differ, and any estimate is, by definition, not a complete census.)

<sup>18</sup> See Charts 19, 21, and 23, respectively. See also, Charts 20, 22, and 24, which are box plots. In these box plots, the 10% of counties (first decile) that are ranked lowest according to the variable of interest (for example, median household income) are summarized by the box on the far left of the chart, and so on, until the 10% of counties (tenth decile) that are ranked highest according to the variable of interest are summarized by the box on the far right. In most deciles, there are some counties (shown as small, unshaded boxes) that appear to be atypical of their group, and therefore may deserve additional study.

<sup>19</sup> See n.17, above. In Chart 25, however, we illustrate the relationship, in the collected data as of year-end 2008, between estimated household share of fixed-location high-speed connections and population density (measured by households per square mile), in census tracts with differing income levels.

**Report overview.** Following a presentation of report highlights, the remainder of the report consists of tables and charts in the following sequence.

- National data. Updates of four historical trend tables from earlier reports are presented, followed by tables and charts summarizing newly available data. New materials include:
  - Tables summarizing connections reported in 72 combinations of upstream and downstream transmission speeds, and charts comparing that information to the NTIA/RUS BTOP/BIP NOFA definition of broadband service.
  - Charts and maps summarizing differences among the 3,232 counties and 66,287 census tracts in the estimated share of households with fixed-location high-speed Internet access connections.
- State data. Certain historical trend tables from earlier reports are updated, and a new table summarizes the expanded information about connection speeds.
- County and census tract data. New tables explore, in greater detail, estimated shares of households with fixed-location high-speed Internet access service in different geographies. By contrast to the national summary information, these tables present detailed results for the counties and census tracts in individual states.
- Preliminary analysis of demographic factors. Charts are introduced to illustrate relationships to demographic factors, for example, income and educational attainment.

Readers should note that, consistent with our past practices for this report, publicly available detailed information that supplements the report will be made available electronically on the Wireline Competition Bureau's website.<sup>20</sup>

## **Report highlights**

### **Total subscribership by technology (Table 1)**

- High-speed Internet access connections to homes and businesses over fixed-location technologies increased by 10% during 2008, to 77 million. By contrast, the annual rate of increase was 17% during 2007.

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<sup>20</sup> See, for example, items posted under the subheading "Miscellaneous data from FCC Form 477" at <http://www.fcc.gov/wcb/iatd/comp.html>.

- At year-end 2008, 25 million mobile wireless service subscribers had mobile devices (such as laptops and smartphones) with high-speed data plans for full Internet access. By contrast, at that time there were 86 million subscribers whose mobile device was capable of transmitting information at speeds above 200 kbps, including subscribers who purchased only a voice service plan for the handset, subscribers whose data service included only customized-for-mobile content (for example, text and multimedia messaging, or the capacity to download ringtones and games), and the 25 million subscribers with data plans for full Internet access. Because reporting practices previously varied among providers to a largely unknown degree, neither of the December 2008 figures is directly comparable to mobile wireless high-speed connections reported for earlier dates.
- Reported connections for the most widely adopted fixed-location technologies, cable modem and aDSL, increased by 14% and 3%, respectively, during 2008, to 41 million cable modem connections and 30 million aDSL connections, with the cable modem increase being partly due to more comprehensive reporting by small cable systems. A 56% increase in total fiber-to-the-premises (“FTTP”) connections, to 3 million, was the largest rate of change among the fixed-location technologies.

#### **Residential subscribership by technology (Table 3)**

- There were 86 million residential high-speed connections at year-end 2008, of which 70 million were fixed-technology connections and 16 million were mobile wireless subscribers with data plans for full Internet access.
- Of the 86 million residential high-speed connections at year-end 2008, cable modem represented 46%, aDSL represented 31%, mobile wireless subscribers with data plans for full Internet access represented 18%, FTTP represented 3%, and all other technologies represented 1%. At year-end 2005, by contrast, there were roughly half as many residential high-speed connections (44 million), of which cable modem represented 58%, aDSL represented 40%, and all other technologies represented 2%.
- Residential FTTP connections increased by 61% during 2008 while residential aDSL high-speed connections were essentially unchanged. Together, residential aDSL and FTTP connections increased by 4% during 2008, to 29 million.

#### **Connection speeds (Tables 5 - 7)**

- Of the 102 million total (combined residential and business) high-speed connections at year-end 2008, 86 million (or 84% of the total) were faster than 200 kbps in both upstream and downstream directions, 77% met the NOFA definition of broadband service (with 768 kbps or higher advertised downstream speeds and upstream speeds above 200 kbps), 49% had downstream speeds of 3 megabits per second (mbps) or more and upload speeds above 200 kbps, 34% had downstream speeds of 6 mbps or more and upload speeds above 200 kbps, and 11% had downstream speeds of 10 mbps or more and upload speeds above 200 kbps.
- For fixed-location technologies as a group, 89% of connections met the NOFA definition of broadband service. Among mobile wireless subscribers whose subscription included a data plan for full Internet access, 41% of subscriptions met the NOFA definition.

- Of the 86 million *residential* high-speed connections reported at year-end 2008, 69 million (or 80% of the total) met the NOFA definition of broadband service. Of these, 56% were cable modem, 31% were aDSL, 4% were FTTP, 9% were mobile wireless subscribers with data plans for full Internet access, and 1% were a technology other than these.
- Of the 17 million *residential* high-speed connections reported at year-end 2008 that did not meet the NOFA definition of broadband service, 56% were mobile wireless subscribers with data plans for full Internet access, 31% were aDSL, 8% were cable modem, 3% were satellite, 1% were fixed wireless, and 1% were a technology other than these.

**Census tract and county shares of households with high-speed connections (Charts 17 and 18, and two maps following Table 12)**

- For the first time in the Form 477 data collection, data are available to estimate the share of households with fixed-location high-speed Internet access connections in individual census tracts and counties. Our estimates indicate that there are substantial areas of relatively low and relatively high household adoption around the national average.
- Particularly for census tracts, we find estimates above 100% for the share of households with fixed-location high-speed Internet access connections. These results suggest that there may have been some reporting errors in the initial collection of information by census tract.<sup>21</sup>

**Maps of high-speed providers by census tract**

- New maps depict the number of providers of high-speed connections by census tract. These maps are similar to previously published maps of providers by ZIP Code, but differ in important respects. Instead of a single map combining providers of connections over all technologies and to both residential and business end users, now three maps depict: (1) providers of total (combined residential and business) fixed-location connections, (2) providers of *residential* fixed-location connections, and (3) providers making mobile wireless high-speed service *available*.

**Household adoption rates and subscribership demographics (Charts 19 - 25)**

- For the first time, the report includes charts illustrating the relationship between household subscribership, or *adoption*, rates and demographic factors, such as median household income, household density, and educational attainment.
- The exploratory data analysis presented in the report indicates that some demographic variables matter in explaining geographic variations in the adoption of high-speed Internet access service.

\* \* \* \*

We invite users of this information to provide suggestions for improved analysis of data presented in this report by using the attached customer response form or by e-mailing comments to [IATDreports@fcc.gov](mailto:IATDreports@fcc.gov) for subject: Dec 2008 high speed data. We encourage users of this information to provide suggestions for improved data collection by participating in any formal proceedings undertaken by the Commission to solicit comments for improvement of FCC Form 477.

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<sup>21</sup> See n.17, above.

**Table 1**  
**High-Speed Connections 2005-2008**  
 (Connections over 200 kbps in at least one direction, in thousands)

Technology	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
<b>Total</b>	42,518	50,930	64,992	82,525	100,986	121,222	132,814	<b>102,043</b>
<b>Total Fixed</b>	42,138	47,803	53,975	60,238	65,681	70,206	73,123	<b>76,926</b>
aDSL	16,316	19,515	22,584	25,413	27,793	29,449	29,964	<b>30,190</b>
sDSL	412	369	337	345	320	293	275	<b>245</b>
Other Wireline	487	373	472	545	622	605	665	<b>711</b>
Cable Modem	24,017	26,558	29,173	31,982	34,404	36,507	38,190	<b>41,468</b>
FTTP <sup>1</sup>	316	298	547	894	1,281	1,849	2,346	<b>2,881</b>
Satellite	377	427	495	572	669	791	869	<b>938</b>
Fixed Wireless	209	257	361	483	587	707	808	<b>488</b>
Power Line and Other	5	5	5	5	5	5	5	<b>5</b>
Mobile Wireless <sup>2</sup>	380	3,128	11,017	22,288	35,305	51,016	59,691	<b>25,117</b>

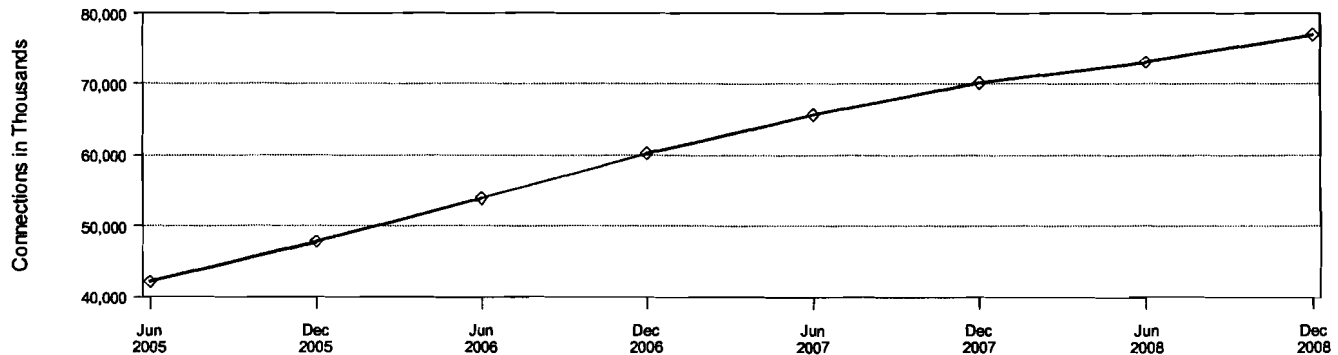
<sup>1</sup> Fiber to the premises. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> Reporting instructions for mobile wireless changed between the June 2008 and December 2008 data. The changes, and their effect on the reported data, are explained at pp. 3-4 of the report text.

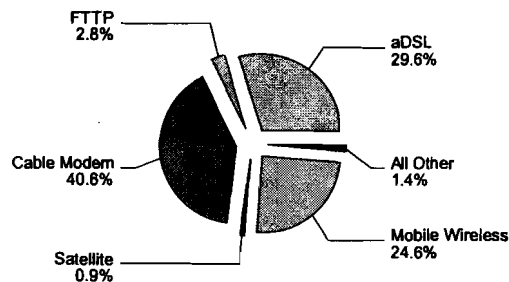
Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Part I.

**Chart 1**  
**Fixed High-Speed Connections 2005-2008**



**Chart 2**  
**High-Speed Connections by Technology as of December 31, 2008**



**Table 2**  
**Advanced Services Connections 2005-2008**  
 (Connections over 200 kbps in both directions, in thousands)

Technology	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
<b>Total</b>	37,333	43,592	50,838	59,505	69,619	80,254	88,414	<b>85,865</b>
<b>Total Fixed</b>	37,311	43,510	48,923	55,015	60,429	64,907	68,189	<b>71,320</b>
aDSL	13,176	15,921	18,310	21,144	23,657	25,244	26,132	<b>26,562</b>
sDSL	387	369	337	345	319	293	275	<b>245</b>
Other Wireline	482	368	471	544	622	605	665	<b>711</b>
Cable Modem	22,745	26,294	28,893	31,594	33,936	36,165	37,849	<b>40,415</b>
FTTP <sup>1</sup>	314	297	546	893	1,279	1,845	2,344	<b>2,876</b>
Satellite	11	36	27	36	57	74	155	<b>110</b>
Fixed Wireless	191	220	333	455	554	675	763	<b>397</b>
Power Line and Other	4	5	5	5	5	5	5	<b>5</b>
Mobile Wireless <sup>2</sup>	21	82	1,914	4,491	9,190	15,347	20,226	<b>14,545</b>

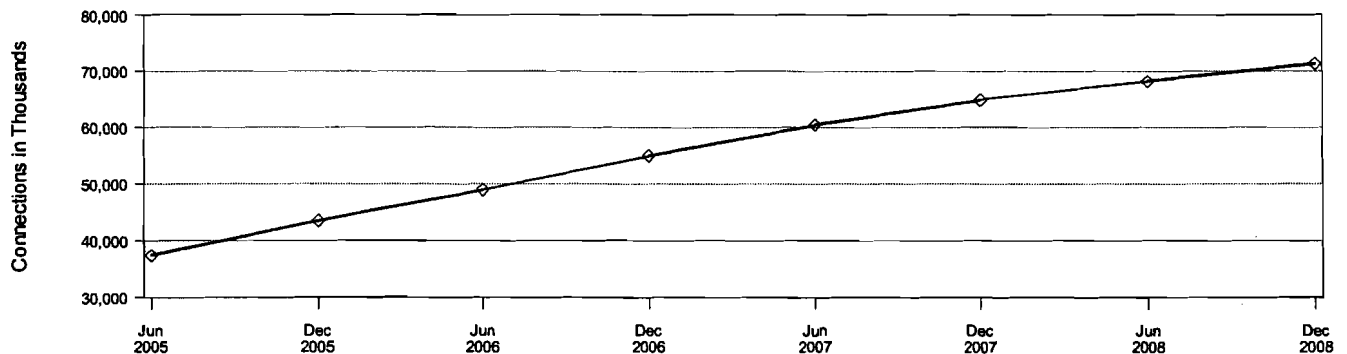
<sup>1</sup> Fiber to the premises. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> See footnote 2, Table 1.

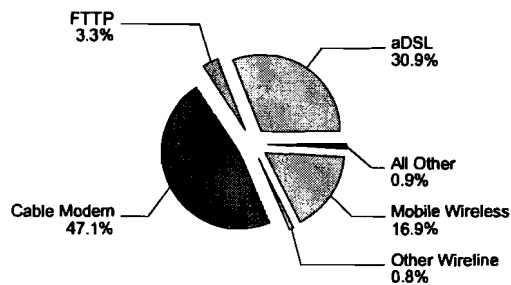
Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Part I.

**Chart 3**  
**Fixed Advanced Services Connections 2005-2008**



**Chart 4**  
**Advanced Services Connections by Technology as of December 31, 2008**



**Table 3**  
**Residential High-Speed Connections 2005-2008**  
 (Connections over 200 kbps in at least one direction, in thousands)

Technology	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
<b>Total</b>	38,696	43,965	50,941	58,344	66,173	73,984	79,090	<b>85,966</b>
<b>Total Fixed</b>	38,694	43,956	49,784	55,652	60,628	64,875	67,554	<b>70,148</b>
aDSL	14,443	17,371	20,152	22,768	24,962	26,475	26,950	<b>26,481</b>
sDSL	154	122	103	105	105	82	81	<b>74</b>
Other Wireline	6	7	9	13	12	17	32	<b>42</b>
Cable Modem	23,578	25,714	28,388	31,118	33,336	35,341	36,901	<b>39,788</b>
FTTP <sup>1</sup>	83	213	444	764	1,153	1,683	2,139	<b>2,715</b>
Satellite	265	320	382	456	530	626	705	<b>630</b>
Fixed Wireless	161	203	301	424	523	644	741	<b>413</b>
Power Line and Other	4	5	5	5	5	5	5	<b>5</b>
Mobile Wireless <sup>2</sup>	3	9	1,157	2,692	5,545	9,109	11,536	<b>15,818</b>

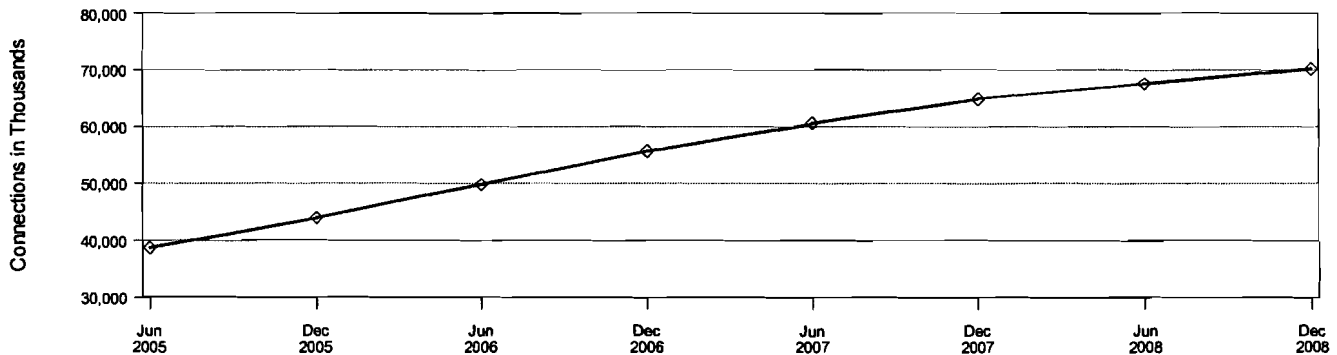
<sup>1</sup> Fiber to the premises. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> See footnote 2, Table 1.

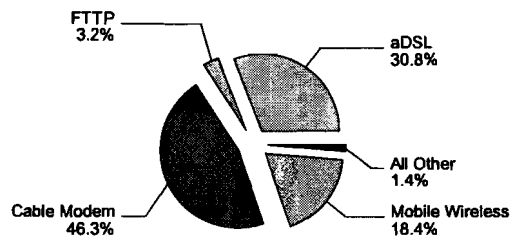
Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Parts I and VI.

**Chart 5**  
**Residential Fixed High-Speed Connections 2005-2008**



**Chart 6**  
**Residential High-Speed Connections by Technology as of December 31, 2008**



**Table 4**  
**Residential Advanced Services Connections 2005-2008**  
 (Connections over 200 kbps in both directions, in thousands)

Technology	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
<b>Total</b>	34,445	40,323	46,585	53,648	61,371	69,148	74,458	<b>74,333</b>
<b>Total Fixed</b>	34,443	40,314	45,428	50,956	55,825	60,040	62,934	<b>65,051</b>
aDSL	11,731	14,242	16,416	18,878	21,106	22,556	23,315	<b>23,039</b>
sDSL	150	122	103	105	105	82	81	<b>74</b>
Other Wireline	2	3	9	13	12	17	32	<b>42</b>
Cable Modem	22,324	25,533	28,159	30,771	32,916	35,035	36,600	<b>38,779</b>
FTTP <sup>1</sup>	83	213	443	763	1,151	1,680	2,137	<b>2,710</b>
Satellite	2	25	15	23	35	48	63	<b>73</b>
Fixed Wireless	146	171	278	399	494	617	700	<b>330</b>
Power Line and Other	4	4	5	5	5	5	5	<b>5</b>
Mobile Wireless <sup>2</sup>	3	9	1,157	2,692	5,545	9,108	11,525	<b>9,281</b>

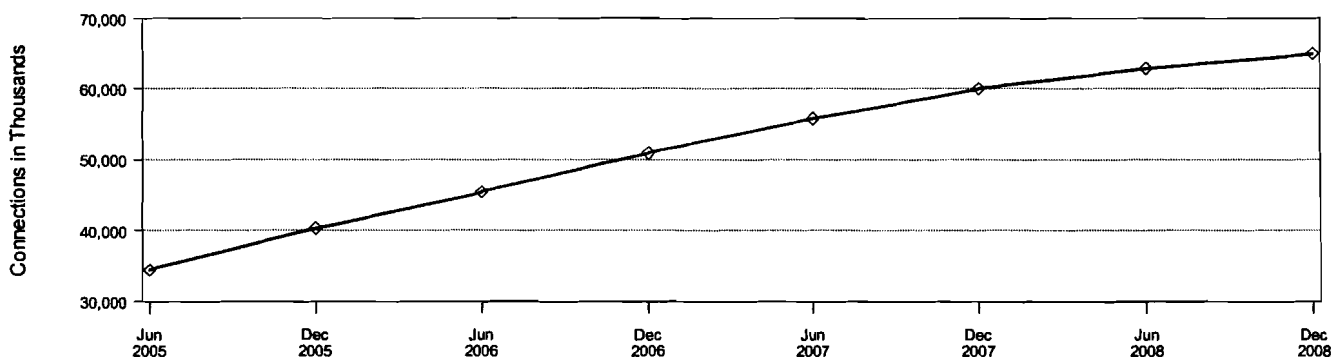
<sup>1</sup> Fiber to the premises. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.

<sup>2</sup> See footnote 2, Table 1.

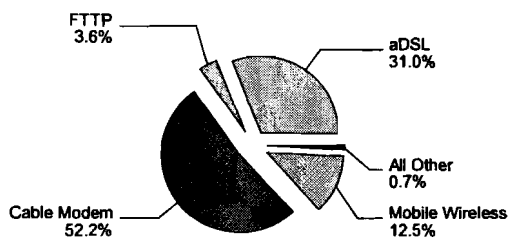
Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Parts I and VI.

**Chart 7**  
**Residential Fixed Advanced Services Connections 2005-2008**

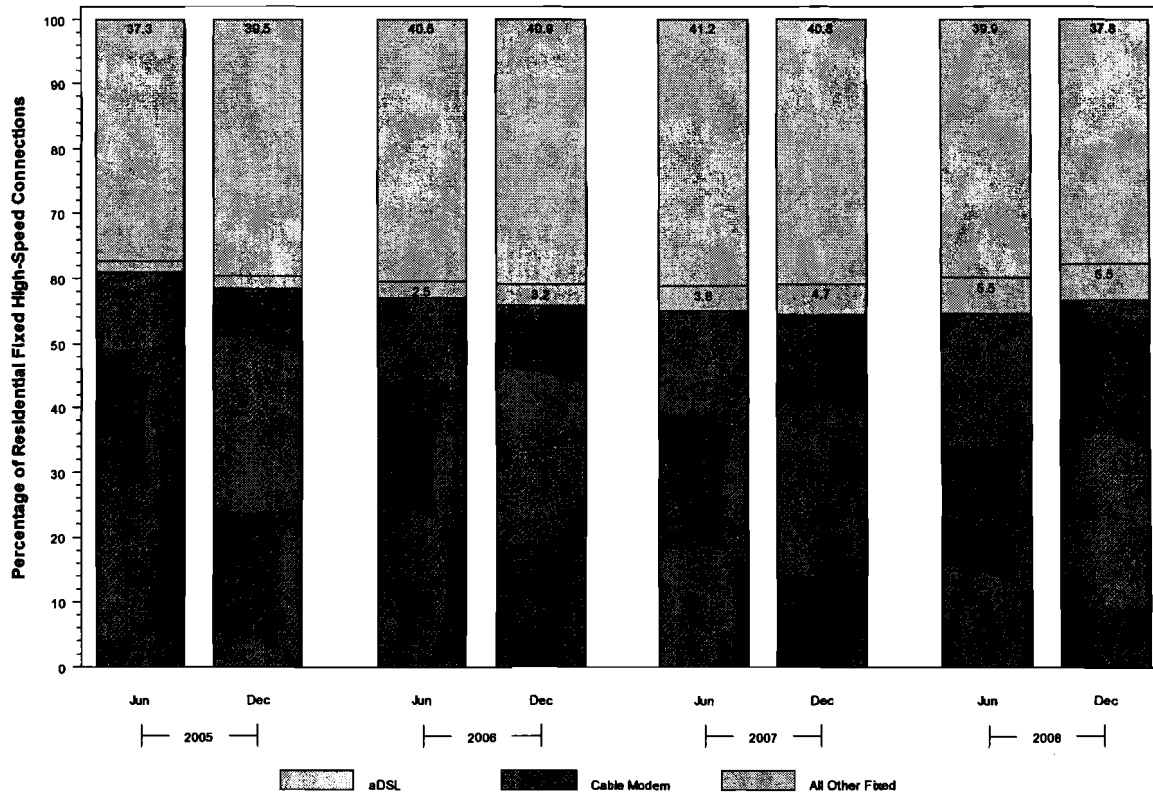


**Chart 8**  
**Residential Advanced Services Connections by Technology as of December 31, 2008**

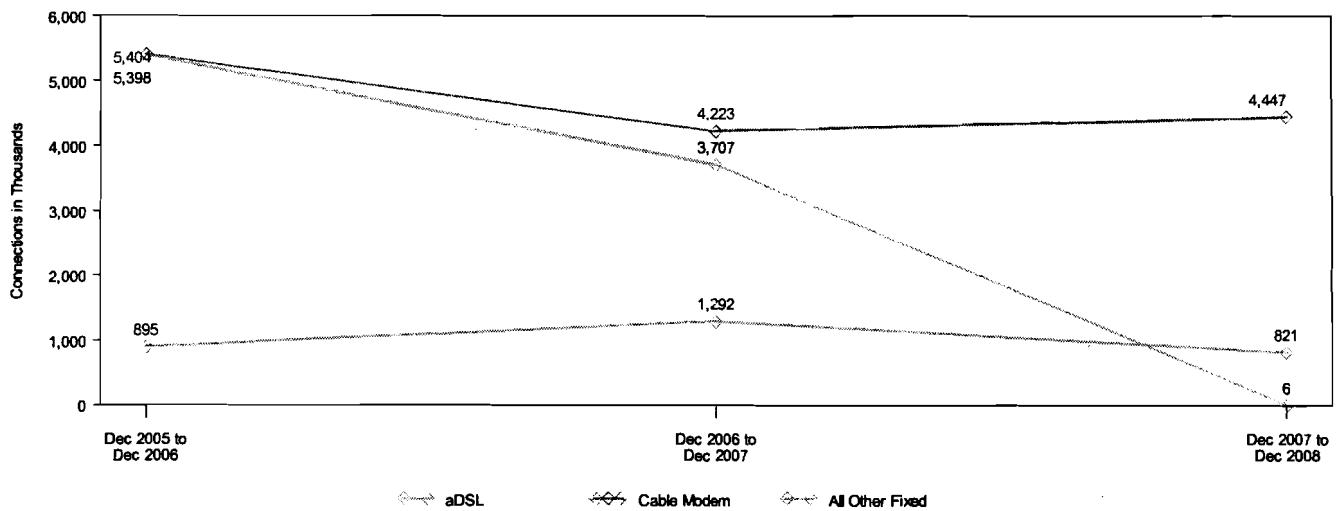




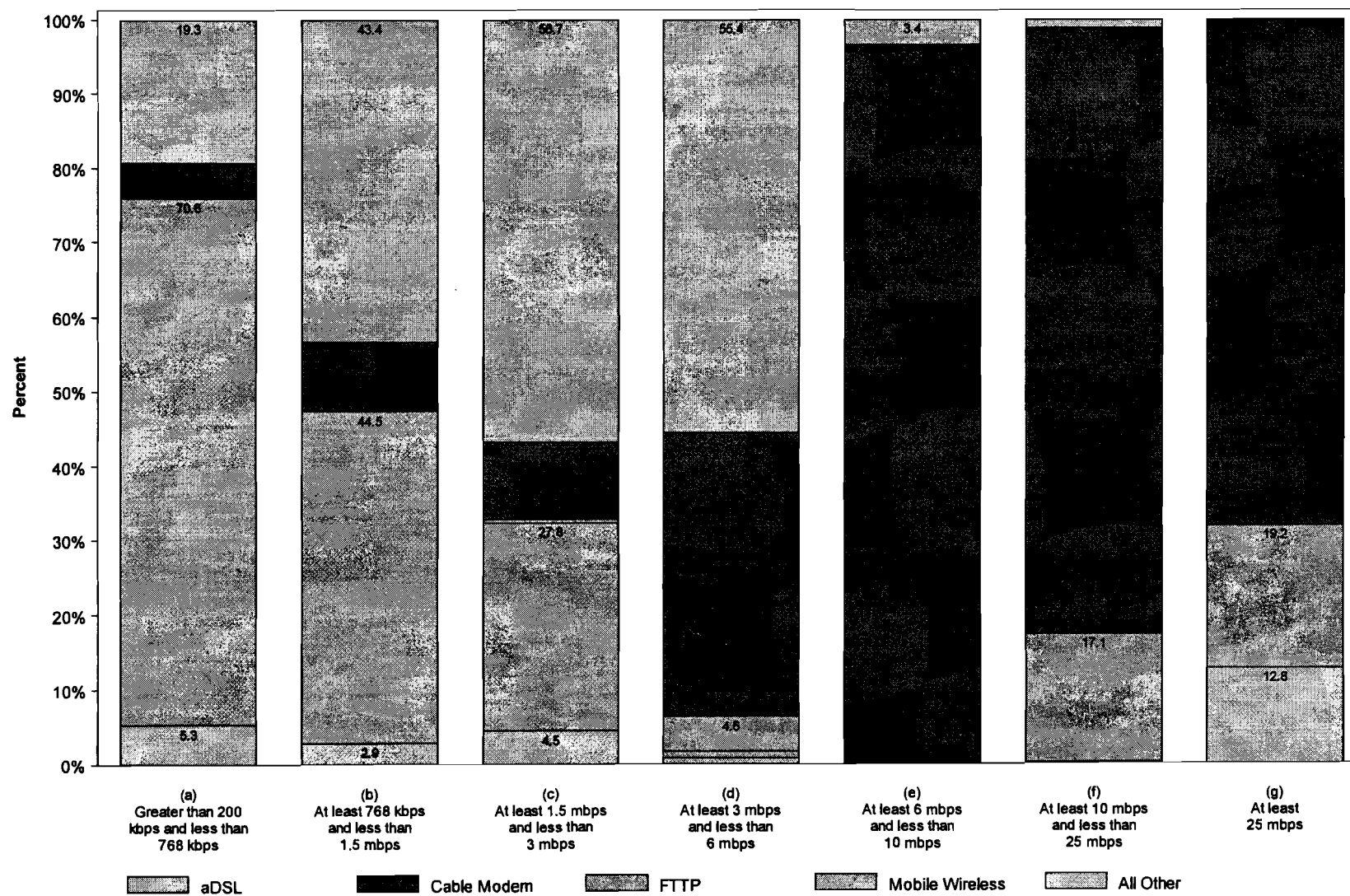
**Chart 9**  
**Residential Fixed High-Speed Connections 2005-2008**  
 (Shares of Selected Technologies)



**Chart 10**  
**Residential Fixed High-Speed Connections 2005-2008**  
 (Net Adds for Selected Technologies)



**Chart 11**  
**Distribution of High-Speed Connections by Downstream Speed**  
**Selected Technologies as of December 31, 2008**



**Table 5**  
**Residential High-Speed Connections by Technology and Speed as of December 31, 2008**  
 (Connections in thousands)

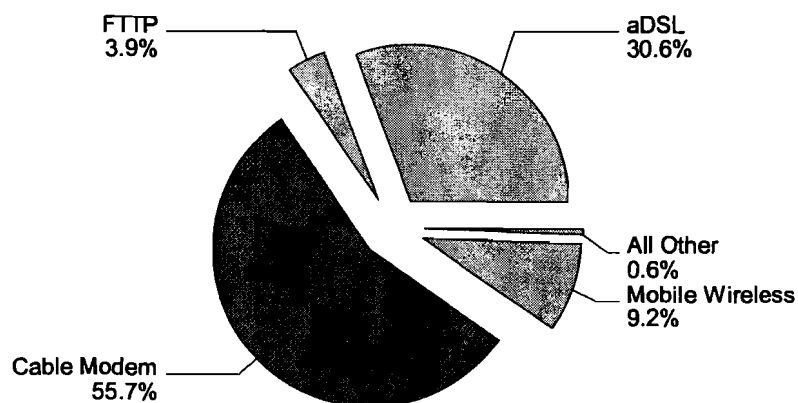
<i>Technology</i>	<i>At Most 200 kbps Upstream or less than 768 kbps Downstream</i>	<i>Over 200 kbps Upstream and at least 768 kbps Downstream</i>	<i>Total</i>
aDSL	5,318	21,163	26,481
sDSL	37	37	74
Other Wireline	4	38	42
Cable Modem	1,327	38,461	39,788
FTTP	19	2,695	2,715
Satellite	560	70	630
Fixed Wireless	170	244	413
Mobile Wireless	9,465	6,353	15,818
Power Line and Other	1	3	5
<b>Total</b>	<b>16,901</b>	<b>69,066</b>	<b>85,966</b>

# = Rounds to Zero.

Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Parts I and VI.

**Chart 12**  
**Residential Broadband Connections (BTOP/BIP Definition) by Technology**  
**as of December 31, 2008**



Note: The BTOP/BIP broadband definition is advertised speeds of at least 768 kbps downstream and 200 kbps upstream to end users. See also p. 3 of the report text.  
 Source: FCC Form 477, Parts I and VI.

**Table 6**  
**Total High-Speed Connections by Speed Tier as of December 31, 2008**  
(Connections in thousands)

Technology	200 kbps or less Upstream			Over 200 kbps Upstream								Total
	Download over 200 kbps and less than 768 kbps	Download at least 768 kbps	Subtotal	Download over 200 kbps and less than 768 kbps	Download at least 768 kbps and less than 1.5 mbps	Download at least 1.5 mbps and less than 3 mbps	Download at least 3 mbps and less than 6 mbps	Download at least 6 mbps and less than 10 mbps	Download at least 10 mbps and less than 25 mbps	Download at least 25 mbps	Subtotal	
aDSL	1,174	2,455	3,628	2,080	5,969	9,252	8,357	769	135	#	26,562	30,190
sDSL	0	0	0	110	80	*	4	#	*	#	245	245
Other Wireline	0	0	0	110	88	392	62	22	16	22	711	711
Cable Modem	446	607	1,053	331	1,171	1,696	5,756	21,967	9,373	121	40,415	41,468
FTTP	5	1	6	19	40	79	697	37	1,970	34	2,876	2,881
Satellite	499	329	828	*	*	*	*	0	0	0	110	938
Fixed Wireless	70	22	92	101	109	123	45	9	9	1	397	488
Mobile Wireless	7,576	2,996	10,572	4,296	8,364	1,747	138	0	0	0	14,545	25,117
Power Line and Other	0	0	0	*	*	*	*	0	*	0	5	5
Total	9,769	6,409	16,178	7,052	15,839	13,428	15,060	22,804	11,503	178	85,865	102,043

Percentages

aDSL	3.9	8.1	12.0	6.9	19.8	30.6	27.7	2.5	0.4	0.0	88.0	100.0
sDSL	0.0	0.0	0.0	44.9	32.5	*	1.6	0.0	*	0.0	100.0	100.0
Other Wireline	0.0	0.0	0.0	15.5	12.3	55.1	8.7	3.1	2.2	3.1	100.0	100.0
Cable Modem	1.1	1.5	2.5	0.8	2.8	4.1	13.9	53.0	22.6	0.3	97.5	100.0
FTTP	0.2	0.0	0.2	0.7	1.4	2.7	24.2	1.3	68.4	1.2	99.8	100.0
Satellite	53.2	35.0	88.3	*	*	*	*	0.0	0.0	0.0	11.7	100.0
Fixed Wireless	14.2	4.5	18.7	20.8	22.3	25.2	9.2	1.9	1.8	0.2	81.3	100.0
Mobile Wireless	30.2	11.9	42.1	17.1	33.3	7.0	0.5	0.0	0.0	0.0	57.9	100.0
Power Line and Other	0.0	0.0	0.0	*	*	*	*	0.0	*	0.0	100.0	100.0
Total	9.6	6.3	15.9	6.9	15.5	13.2	14.8	22.3	11.3	0.2	84.1	100.0

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Part I.

**Table 7**  
**Residential High-Speed Connections by Speed Tier as of December 31, 2008**  
(Connections in thousands)

Technology	200 kbps or less Upstream			Over 200 kbps Upstream								Total
	Download over 200 kbps and less than 768 kbps	Download at least 768 kbps	Subtotal	Download over 200 kbps and less than 768 kbps	Download at least 768 kbps and less than 1.5 mbps	Download at least 1.5 mbps and less than 3 mbps	Download at least 3 mbps and less than 6 mbps	Download at least 6 mbps and less than 10 mbps	Download at least 10 mbps and less than 25 mbps	Download at least 25 mbps	Subtotal	
aDSL	1,094	2,348	3,442	1,876	5,466	7,912	7,045	627	113	#	23,039	26,481
sDSL	0	0	0	37	22	*	1	#	*	0	74	74
Other Wireline	0	0	0	4	20	8	1	8	#	#	42	42
Cable Modem	415	595	1,010	317	1,111	1,553	5,353	21,355	9,020	70	38,779	39,788
FTTP	4	1	5	14	31	54	678	31	1,885	16	2,710	2,715
Satellite	354	203	557	*	*	*	*	0	0	0	73	630
Fixed Wireless	63	20	84	86	90	104	35	7	7	#	330	413
Mobile Wireless	4,709	1,828	6,537	2,928	5,079	1,156	119	0	0	0	9,281	15,818
Power Line and Other	0	0	0	*	*	*	*	0	*	0	5	5
Total	6,639	4,995	11,634	5,267	11,835	10,857	13,232	22,027	11,028	86	74,333	85,966

Percentages

aDSL	4.1	8.9	13.0	7.1	20.6	29.9	26.6	2.4	0.4	0.0	87.0	100.0
sDSL	0.0	0.0	0.0	49.6	29.6	*	1.2	0.0	*	0.0	100.0	100.0
Other Wireline	0.0	0.0	0.0	9.0	48.4	19.8	3.4	18.9	0.6	0.0	100.0	100.0
Cable Modem	1.0	1.5	2.5	0.8	2.8	3.9	13.5	53.7	22.7	0.2	97.5	100.0
FTTP	0.2	0.0	0.2	0.5	1.2	2.0	25.0	1.2	69.5	0.6	99.8	100.0
Satellite	56.1	32.2	88.3	*	*	*	*	0.0	0.0	0.0	11.7	100.0
Fixed Wireless	15.3	4.9	20.2	20.8	21.7	25.3	8.5	1.7	1.8	0.1	79.8	100.0
Mobile Wireless	29.8	11.6	41.3	18.5	32.1	7.3	0.8	0.0	0.0	0.0	58.7	100.0
Power Line and Other	0.0	0.0	0.0	*	*	*	*	0.0	*	0.0	100.0	100.0
Total	7.7	5.8	13.5	6.1	13.8	12.6	15.4	25.6	12.8	0.1	86.5	100.0

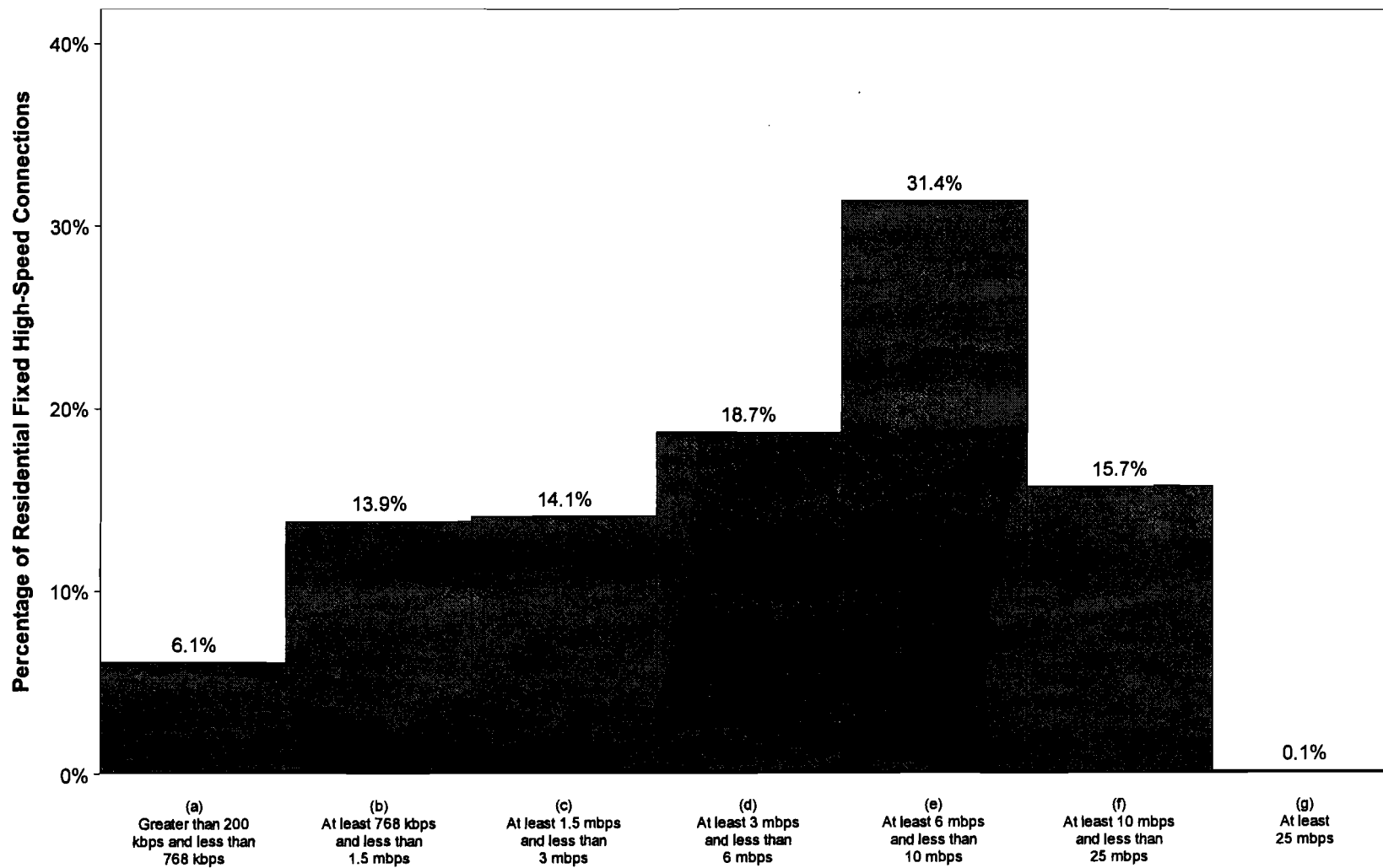
# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Note: Figures may not sum to totals due to rounding.

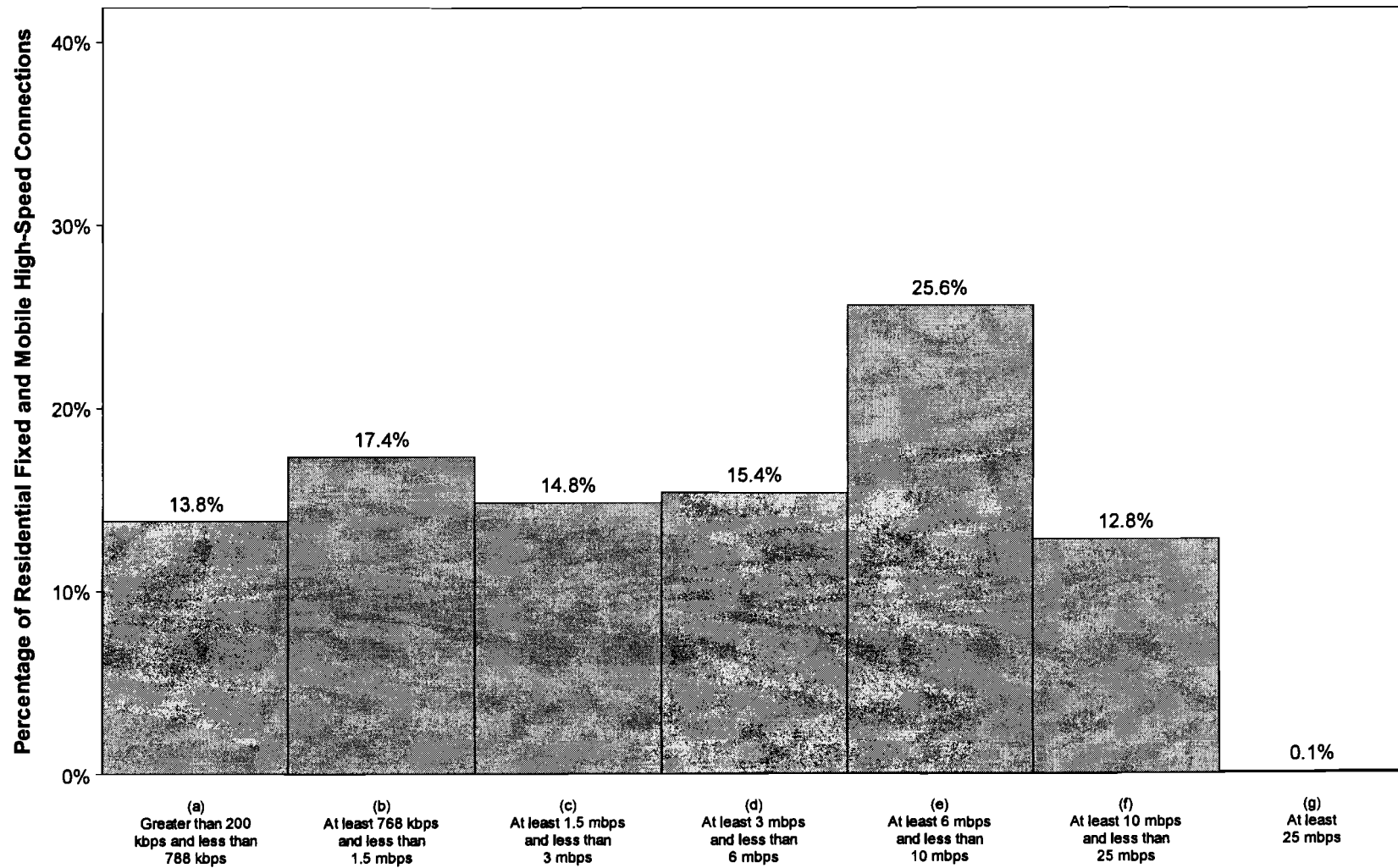
Source: FCC Form 477, Part I.

**Chart 13**  
**Distribution of Residential Fixed High-Speed Connections**  
**by Download Speed Tier as of December 31, 2008**



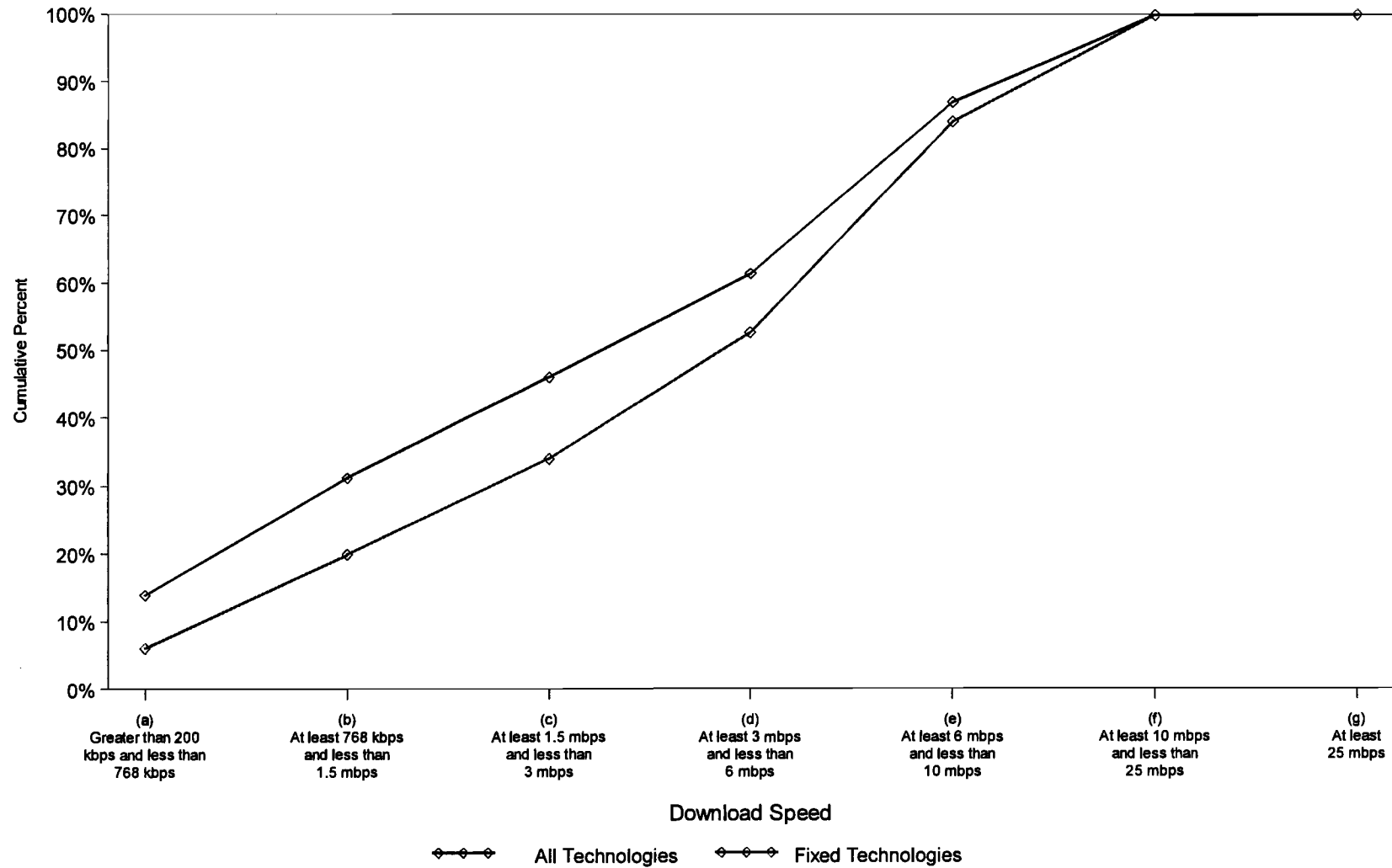
Note: Figures may not sum to totals due to rounding.  
Source: FCC Form 477, Part VI.

**Chart 14**  
**Distribution of Residential High-Speed Connections**  
**by Download Speed Tier as of December 31, 2008**



Note: Figures may not sum to totals due to rounding.  
Source: FCC Form 477, Parts I and VI.

**Chart 15**  
**Cumulative Distribution of Residential High-Speed Connections by Download Speed Tier**  
**as of December 31, 2008**



Source: FCC Form 477, Parts I and VI.



**Table 8**  
**Total High-Speed Connections and Percentage Residential by Speed Tier as of December 31, 2008**  
(Connections in thousands)

Upload Speed	Customer Class	Download Speed								Total
		Greater than 200 kbps and less than 768 kbps	At least 768 kbps and less than 1.5 mbps	At least 1.5 mbps and less than 3 mbps	At least 3 mbps and less than 6 mbps	At least 6 mbps and less than 10 mbps	At least 10 mbps and less than 25 mbps	At least 25 mbps and less than 100 mbps	At least 100 mbps	
Less than or equal to 200 kbps	Total Connections	9,769	3,191	3,200	16	2	#	*	*	16,178
	% Residential	68	97	60	41	59	60	0	0	72
Greater than 200 kbps and less than 768 kbps	Total Connections	7,046	7,577	8,782	9,050	7,515	1,465	*	*	41,436
	% Residential	75	92	86	89	98	98	0	80	88
At least 768 and less than 1.5 mbps	Total Connections	3	8,262	4,098	4,954	14,469	*	1	*	34,978
	% Residential	79	59	80	85	96	98	1	76	84
At least 1.5 mbps and less than 3 mbps	Total Connections	2	#	548	864	785	5,603	*	*	7,803
	% Residential	71	54	10	94	96	95	52	0	89
At least 3 mbps and less than 6 mbps	Total Connections	*	*	1	184	3	1,101	115	*	1,405
	% Residential	42	15	23	58	63	96	58	0	88
At least 6 mbps and less than 10 mbps	Total Connections	*	*	*	8	32	2	*	0	41
	% Residential	0	0	100	0	46	83	0	0	39
At least 10 mbps and less than 25 mbps	Total Connections	0	0	*	*	*	151	3	*	155
	% Residential	0	0	100	100	75	72	54	0	72
At least 25 mbps and less than 100 mbps	Total Connections	0	0	0	*	*	*	22	#	22
	% Residential	0	0	0	0	0	0	4	0	4
At least 100 mbps	Total Connections	0	0	0	0	0	0	*	*	26
	% Residential	0	0	0	0	0	0	0	36	36
Total	Total Connections	16,822	19,030	16,628	15,075	22,806	11,504	143	35	102,043
	% Residential	71	78	77	88	97	96	49	44	84

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Note: Figures may not sum to totals due to rounding.

Source: FCC Form 477, Parts I and VI.

**Table 9**  
**Fixed High-Speed Connections and Percentage Residential by Speed Tier as of December 31, 2008**  
**(Connections in thousands)**

Upload Speed	Customer Class	Download Speed								Total
		Greater than 200 kbps and less than 768 kbps	At least 768 kbps and less than 1.5 mbps	At least 1.5 mbps and less than 3 mbps	At least 3 mbps and less than 6 mbps	At least 6 mbps and less than 10 mbps	At least 10 mbps and less than 25 mbps	At least 25 mbps and less than 100 mbps	At least 100 mbps	
Less than or equal to 200 kbps	Total Connections	2,193	3,078	*	16	2	*	*	*	5,606
	% Residential	88	96	60	41	59	60	0	0	91
Greater than 200 kbps and less than 768 kbps	Total Connections	2,750	6,553	8,435	*	7,515	1,465	*	*	35,769
	% Residential	85	92	85	89	98	98	0	80	91
At least 768 kbps and less than 1.5 mbps	Total Connections	3	922	*	4,954	14,469	3,182	1	*	26,238
	% Residential	79	82	91	85	96	98	1	76	93
At least 1.5 mbps and less than 3 mbps	Total Connections	2	#	*	726	785	5,603	*	*	7,665
	% Residential	71	54	10	95	96	95	52	0	89
At least 3 mbps and less than 6 mbps	Total Connections	*	*	1	184	3	1,101	115	*	1,405
	% Residential	42	15	23	58	63	96	58	0	88
At least 6 mbps and less than 10 mbps	Total Connections	*	*	*	8	32	2	*	0	41
	% Residential	0	0	100	0	46	83	0	0	39
At least 10 mbps and less than 25 mbps	Total Connections	0	0	*	*	*	151	3	*	155
	% Residential	0	0	100	100	75	72	54	0	72
At least 25 mbps and less than 100 mbps	Total Connections	0	0	0	*	*	*	22	#	22
	% Residential	0	0	0	0	0	0	4	0	4
At least 100 mbps	Total Connections	0	0	0	0	0	0	*	*	26
	% Residential	0	0	0	0	0	0	0	36	36
Total	Total Connections	4,950	10,553	11,998	14,937	22,806	11,504	143	35	76,926
	% Residential	86	92	82	88	97	96	49	44	91

# = Rounds to Zero.

\* = Data withheld to maintain firm confidentiality.

Note: Figures may not sum to totals due to rounding.

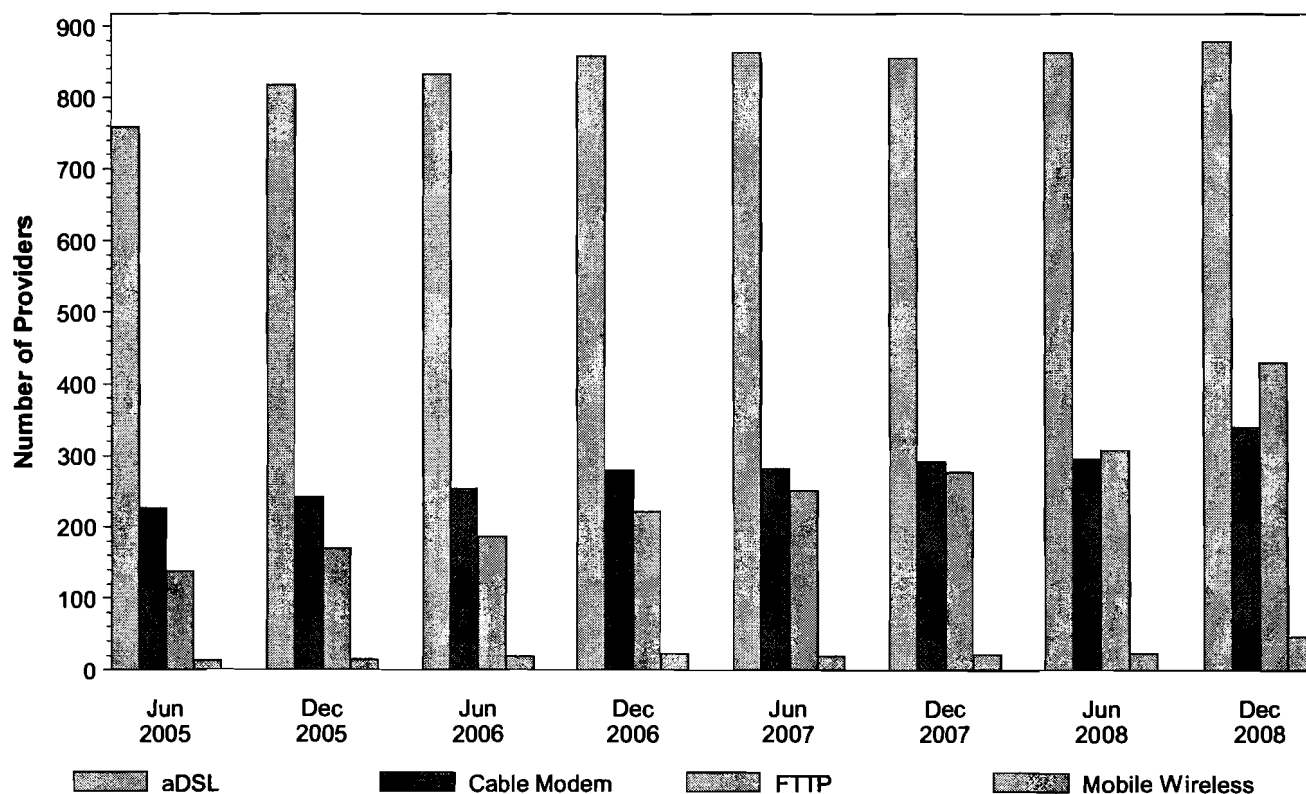
Source: FCC Form 477, Parts I and VI.

**Table 10**  
**Nationwide Number of Providers of High-Speed Connections by Technology 2005 - 2008**  
 (Connections over 200 kbps in at least one direction, in thousands)

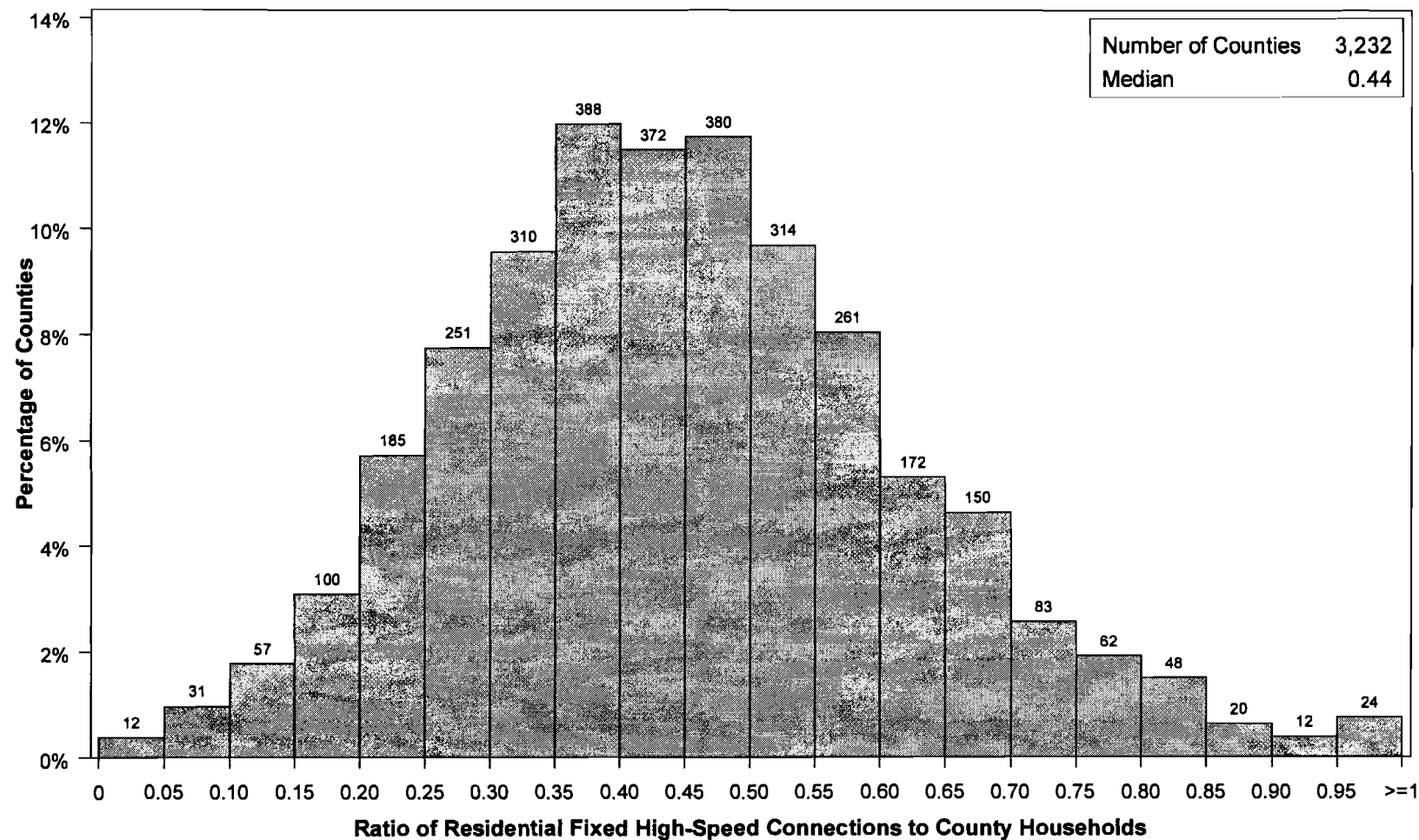
Technology	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
aDSL	758	818	833	858	864	856	863	<b>879</b>
sDSL	270	269	256	257	242	233	238	<b>262</b>
Other Wireline	206	241	246	256	246	250	259	<b>290</b>
Cable Modem	227	242	254	279	282	292	296	<b>341</b>
FTTP	138	170	187	222	251	276	308	<b>430</b>
Satellite	10	4	5	5	5	5	4	<b>5</b>
Fixed Wireless	423	463	452	505	484	514	505	<b>617</b>
Mobile Wireless	13	15	19	24	19	22	24	<b>46</b>
Power Line and Other	18	7	6	6	6	7	6	<b>5</b>
<b>Total</b>	<b>1,270</b>	<b>1,345</b>	<b>1,327</b>	<b>1,396</b>	<b>1,374</b>	<b>1,399</b>	<b>1,395</b>	<b>1,554</b>

Note: Multiple Form 477 filers within a holding company structure count as one provider.  
 Source: FCC Form 477, Part I.

**Chart 16**  
**Nationwide Number of Providers of High-Speed Connections**  
**Selected Technologies 2005 - 2008**



**Chart 17**  
**Distribution of Counties by Ratio of Residential Fixed High-Speed Connections to County Households**  
**as of December 31, 2008**



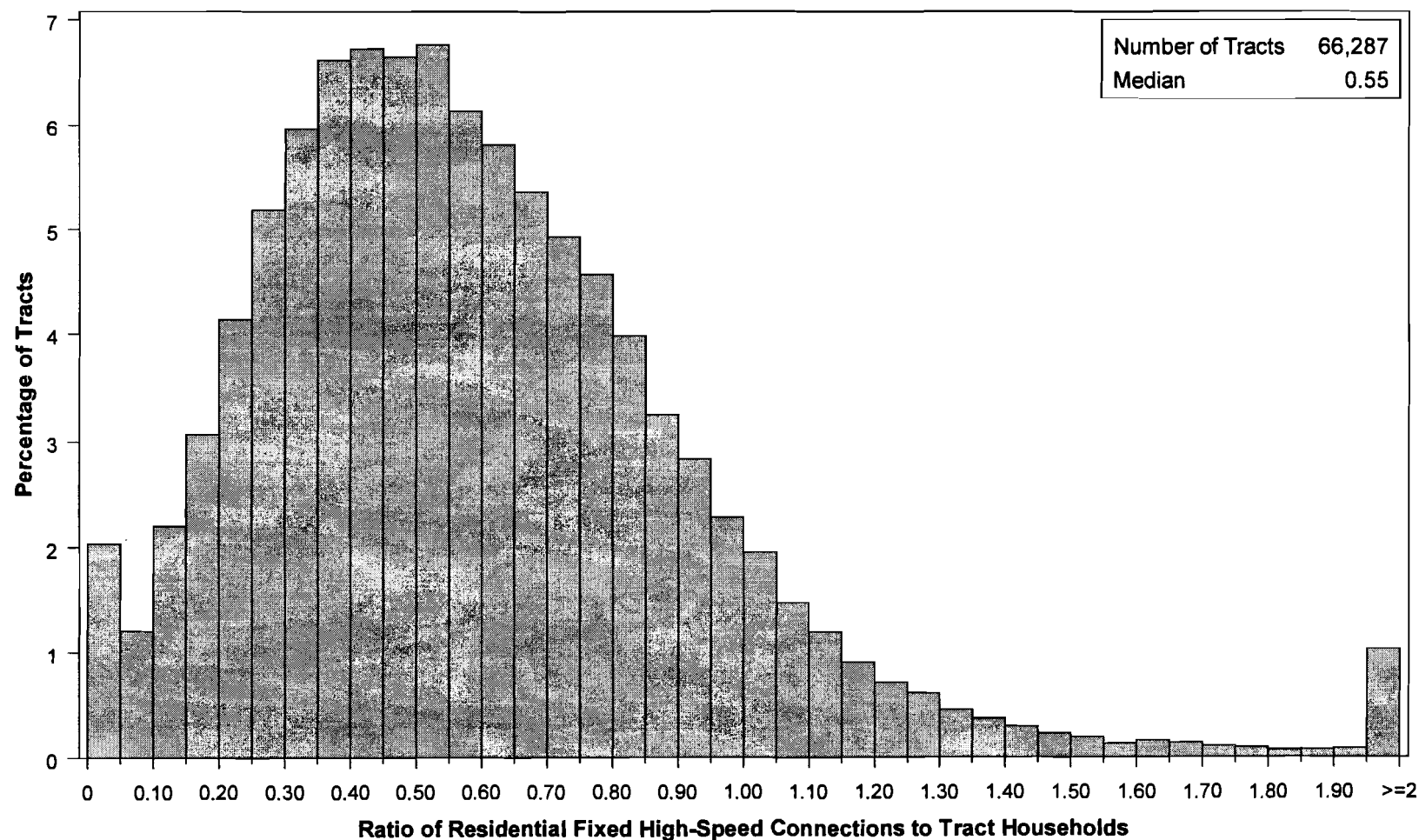
Note: Ratios over 1 were set to 1. See Technical Notes at the end of the report.  
 Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates; and Census 2000.

**Table 11**  
**Distribution of Counties by Ratio of Residential Fixed High-Speed Connections to County Households**  
**by Technology as of December 31, 2008**

Technology	Ratio of Residential Fixed High-Speed Connections to County Households										
	Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 75%	Greater than 75 and no more than 100%	100% or more
aDSL	0.7	2.1	7.0	34.4	33.3	16.0	4.9	1.1	0.4	0.1	0.0
sDSL	85.0	13.8	0.4	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Other Wireline	95.4	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	15.8	12.7	12.2	20.3	16.8	10.6	6.5	3.0	1.6	0.4	0.1
FTTP	76.5	18.0	2.4	1.6	0.9	0.4	0.2	0.0	0.0	0.0	0.0
Satellite	1.0	95.1	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fixed Wireless	52.7	39.4	5.2	2.1	0.5	0.1	0.1	0.0	0.0	0.0	0.0
Power Line	99.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All Other	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.2	0.2	1.0	4.9	13.5	21.6	23.3	17.8	12.5	4.6	0.6

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.  
Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates; and Census 2000.

**Chart 18**  
**Distribution of Census Tracts by Ratio of Residential Fixed High-Speed Connections to Tract Households**  
**as of December 31, 2008**



Note: Ratios over 2 were set to 2. See Technical Notes at the end of the report.  
 Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates; and Census 2000.

**Table 12**  
**Distribution of Census Tracts by Ratio of Residential Fixed High-Speed Connections to Tract Households**  
**by Technology as of December 31, 2008**

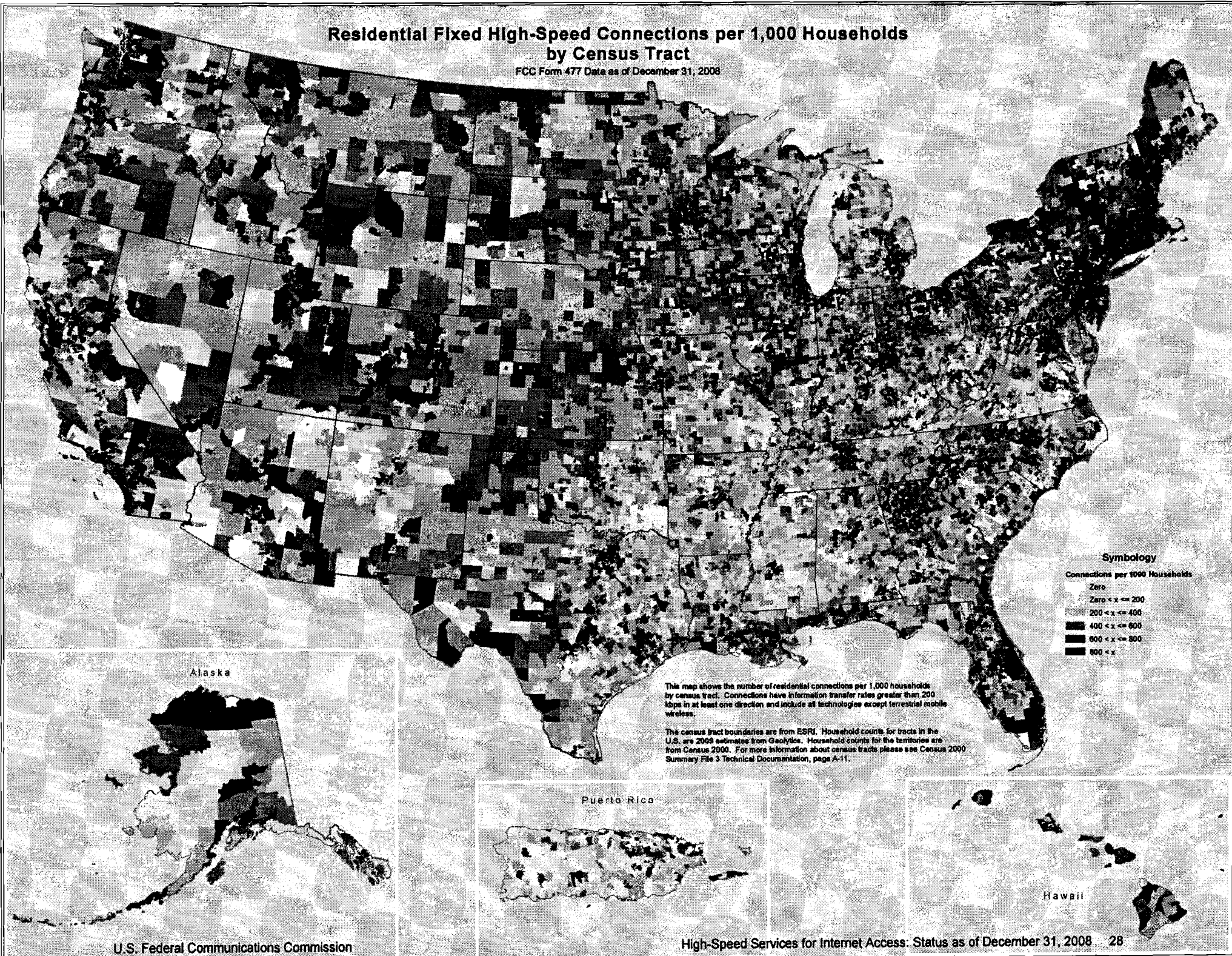
Technology	Ratio of Residential Fixed High-Speed Connections to Tract Households										
	Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 75%	Greater than 75 and no more than 100%	100% or more
aDSL	4.3	10.1	10.5	27.4	21.0	13.2	6.6	3.2	1.9	1.1	0.8
sDSL	96.0	3.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Wireline	99.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	8.6	4.9	5.5	15.0	16.1	15.1	12.7	8.7	7.2	4.0	2.2
FTTP	86.7	5.1	1.6	2.3	1.6	1.2	0.7	0.4	0.2	0.1	0.1
Satellite	45.2	51.9	2.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Fixed Wireless	87.3	10.4	1.2	0.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0
Power Line	99.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All Other	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.1	1.0	1.2	5.3	9.3	12.6	13.4	12.9	16.1	16.9	10.2

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.  
Sources: FCC Form 477, Part VI; Geolytics 2009 Block-Level Estimates; and Census 2000.



# Residential Fixed High-Speed Connections per 1,000 Households by Census Tract

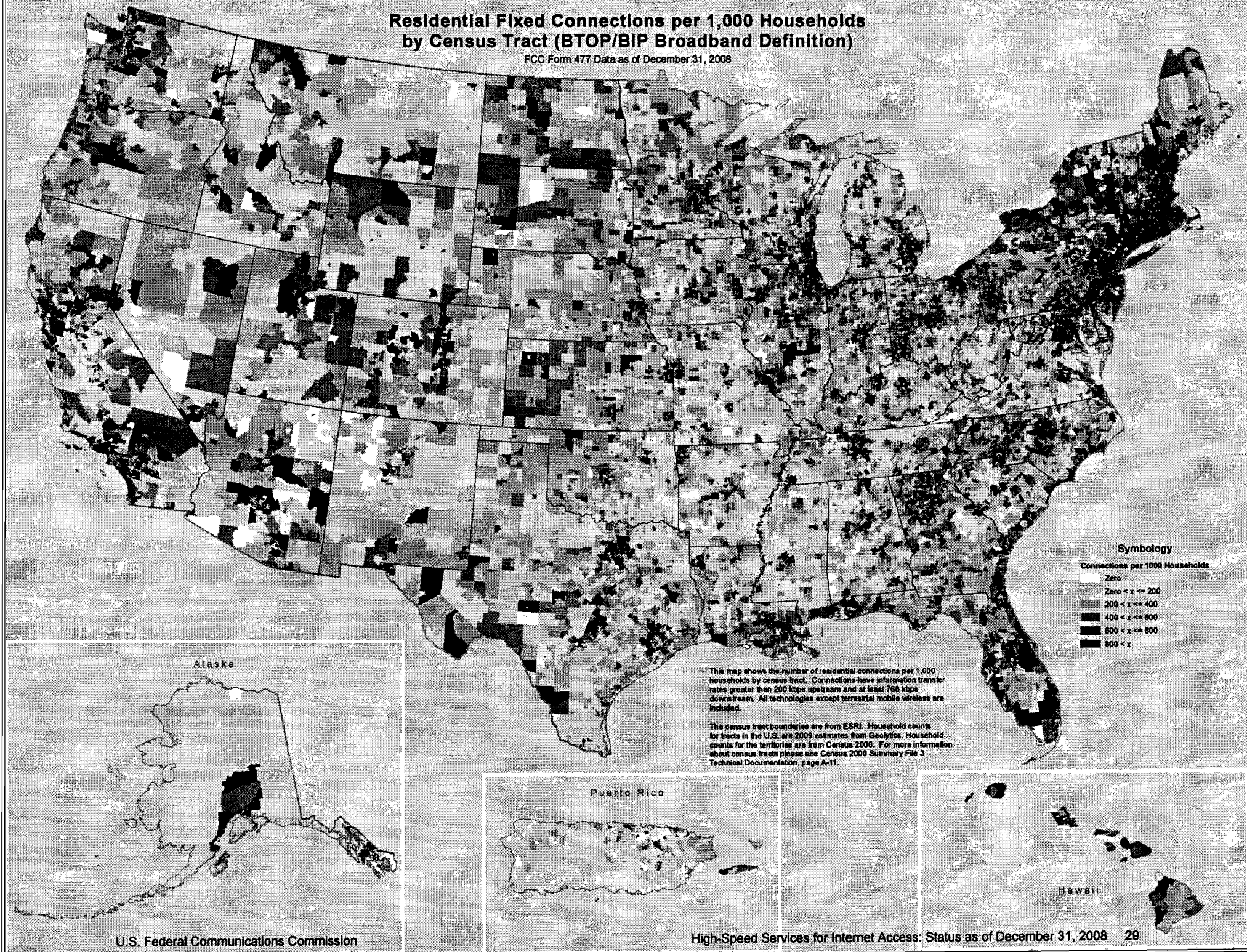
FCC Form 477 Data as of December 31, 2008





# Residential Fixed Connections per 1,000 Households by Census Tract (BTOP/BIP Broadband Definition)

FCC Form 477 Data as of December 31, 2008



# Providers of Fixed High-Speed Connections by Census Tract

FCC Form 477 Data as of December 31, 2008

